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CLOSED CIRCUIT TELEVISION IN TEACHER EDUCATION.

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A 3-YEAR PROJECT WAS INITIATED IN THE SPRING OF 1959 FOR BROAD PURPOSES--(1) TO STUDY THE RELATIVE ADVANTAGES OF OBSERVATION IN TEACHER EDUCATION BY CLOSED-CIRCUIT TELEVISION (CCTV), USE OF KINESCOPES, AND DIRECT OBSERVATION, (2) TO DEVELOP VALID AND RELIABLE MEASURING INSTRUMENTS FOR EVALUATING OBSERVATIONAL PRACTICES AND SKILLS, (3) TO DEVELOP KINESCOPE RECORDINGS FOR TEACHER EDUCATION, (4) TO EVALUATE THE USEFULNESS OF THESE RECORDINGS, AND (5) TO PROVIDE A PILOT STUDY FOR ASSESSING WAYS IN WHICH CCTV CAN BE USED IN RELATED AREAS OF TEACHER EDUCATION. THIS BROCHURE OR GRAPHIC REPORT PRESENTED IN PICTORIAL FORM SOME OF THE PROJECT EXPERIENCES, PROCEDURES, AND DIMENSIONS, ARE INCLUDED--(1) A DESCRIPTION OF THE ADVANTAGES OF CCTV AND KINESCOPE RECORDINGS, (2) A LISTING OF THE RECORDINGS PRODUCED, (3) A PRESENTATION OF THEIR APPLICATIONS, AND (4) SUMMARY RESEARCH FINDINGS. THE INVESTIGATIONS SHOWED THAT CCTV PERMITTED FLEXIBLE USE OF STUDENT AND STAFF TIME AND OF PHYSICAL FACILITIES. (JC)

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C.C.T.V. IN TEACHER EDUCATION

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The work of Ruth E. Zuelke, instructor of art at University High School, in doing the photography and art work found in this brochure is gratefully recognized.

Although some names of persons associated with this project have been listed in this brochure, many others have made significant contributions. They include students and staff members from University Elementary and High Schools, the College of Education, the College of Science, Literature and the Arts, the Institute of Technology, KUOM, all at the University of Minnesota, KTCA-TV, and public schools of the area. Their assistance has been of great help to this study. Without such assistance the project would have faltered many times.

DECEMBER 14, 1961

CLOSED CIRCUIT TELEVISION in teacher education

A GRAPHIC REPORT • 1961
UNIVERSITY OF MINNESOTA
COLLEGE OF EDUCATION
UNIVERSITY HIGH SCHOOL
MINNEAPOLIS 14, MINNESOTA

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A BACKGROUND STATEMENT

Investigation of the possible uses of television for teacher education at the University of Minnesota had its start in 1950 when Dean W. E. Peik of the College of Education requested the staff of University High School to develop educational specifications for a new laboratory high school. Under the leadership of Professor Minard W. Stout, Principal, the University High School staff outlined in detail the kinds of facilities desirable in the new building. One of the recommendations favored installation of a closed circuit television system. Although little was known at the time about the potential of television for teacher education, this faculty recommended that this audio-visual device be installed as one means of enabling prospective teachers to watch master teachers at work.

Support for installation of closed circuit television facility derived from the argument that substitution of the camera for the glass-enclosed observation rooms would represent an economy at the time of construction and would ultimately prove to be more effective in practice. Observation via the television screen, it was suggested, would allow the untrained observer to see important aspects of learning situations through the eyes of a trained teacher-cameraman; at the same time, elements of classroom management which might be distracting to the untrained observer could be avoided or minimized. The result of this argument was the installation of a closed circuit television system in Peik Hall. The wisdom of this planning has become somewhat more evident in the years since this building has been occupied by the laboratory high school, 1953 to the present. The provision of this facility, coupled with the research tradition of the College of Education, made early evaluation of the usefulness of closed circuit television for teacher education an easy next step.

Other factors have facilitated early appraisal of this medium. Like most colleges and universities which seek to prepare teachers, the College

of Education at the University of Minnesota has been hardpressed to handle enrollments and to keep pace with ever-increasing demands for more teachers. It has looked to closed circuit television as one means of providing observational experiences to larger number of undergraduate students in teacher education.

The availability of outside grants has also given priority to this kind of investigation. A special grant was secured in 1956 from the Ford Foundation's Fund for the Advancement of Education to demonstrate the usefulness of closed circuit television for teacher education. The purpose of this 1956-58 study was "to define as precisely as possible if, how, and under what conditions CCTV observation could be used to advantage in teacher education." That this purpose was exceedingly ambitious and optimistic is seen from the fact that this same purpose has largely undergirded the research and use of this medium in the succeeding six years which followed the start of the grant.

With increased demand on the CCTV facility have come improvements and additions in equipment. Coaxial cables have been extended to Burton, Eddy and Nicholson Halls. Through a tie-in with the University radio station facilities, the signal from Peik Hall can be transmitted by microwave relay to KTCA-TV (the education channel) facilities for kinescope or video-tape recording. The present installation in Peik Hall consists of two G.P.L. (General Precision Laboratories) image-orthicon camera chains usually housed in a special studio classroom, but capable of movement throughout Peik Hall. The camera chains, like those used by the WOSU-TV studio in Columbus, are each equipped with a four-lens turret and mounted on movable dollies. They are connected with a director's stand located in a separate audio-visual CCTV center which also houses the distribution amplifier and other equipment needed to originate telecasts.

The special studio classroom has a somewhat higher level of light intensity and some acoustical treatment of walls and ceiling. Receiving

classrooms are usually equipped wit h standard 24 or 27-inch television receivers located along the sides and front of the room. One such classroom is a large auditorium capable of seating 400 students. Sound originating in the studio class is picked up from three or four microphones suspended from the ceiling over the class and from one worn by the instructor.

With the passage of the National Defense Education Act in the fall of 1958, the College of Education was in a position (on the basis of its experience and the equipment which had been gathered) to outline a more ambitious research project under Title VII (P.L. 85-864). Five broad purposes were stated:

(1) To study the relative advantages of observation in teacher education by closed circuit television, use of kinescopes, and direct observation;

(2) To develop valid and reliable measuring instruments for evaluating observational practices and skills;

(3) To develop kinescope recordings for use in pre-service and inservice education of teachers;

(4) To evaluate the usefulness of these kinescope recordings for inservice education; and

(5) To provide a pilot project for assessing ways in which CCTV can be used in related areas of teacher education.

A three-year project embodying these purposes was approved late in the spring of 1959 as Grant Number 721013.09. Periodic progress reports on this project have been prepared for the U.S. Office of Education.

Closed circuit television demonstrations originating in University High School are currently being utilized by the College of Education as an operational part of its teacher education program in secondary education.

This is the seventh year in which these television demonstrations have been used as part of an introductory professional education course at the junior year level. Considerable experience has been gained during this time, both with the original telecasts and with the kinescope recordings of these observations. To these media has been added the dimension of direct observation through classroom visitation.

The purpose of the present brochure is to present in pictorial form some of the experiences, procedures and dimensions of this project. A final report should be available a year from now. It is hoped that the present bulletin will be helpful to those who have an interest in current developments on this study.

Robert J. Keller
Professor of Education
Director, University High School

Minneapolis

ADVANTAGES OF CCTV AND KINESCOPES

Observations conducted by CCTV are many times an improvement over observations made in person. Working with a single demonstration teacher, a college instructor can carefully pre-plan demonstrations to be pertinent to the work of his class. During the demonstration itself, the college instructor can make comments; discussions following the observation can be more effective since all have had the same experience.

* The camera can focus on what is important, such as close-ups of children, to show differences in approaches to problems.

* The demonstration can do more than record samples of behavior by teachers and their students. It can transmit the "know how" of teaching by visual demonstration which goes beyond textbook description.

* It may furnish a model for guiding the student in his own teaching role—first as a "student teacher"—later as a certified professional.

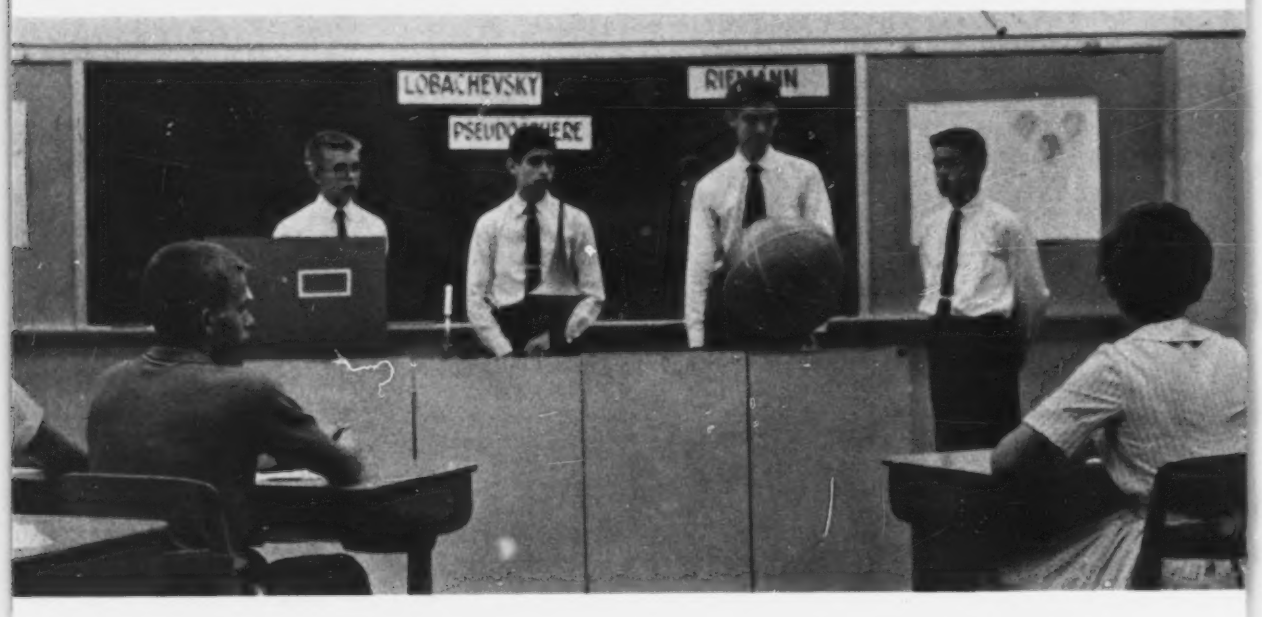
* The camera can portray the constant interaction between teacher and students.

* College instructors can pre-plan the lesson to be demonstrated with the laboratory school teachers so that the demonstrations on TV are applicable to the work of college classes.

Demonstrations are televised from a special studio classroom where two movable cameras are operated by classroom teachers participating in the project. A director, also an experienced teacher, guides the cameramen by means of a two-way intercom system and selects which of the two pictures will be transmitted to viewers. By these means the director can focus the attention of viewers on significant features of the classroom situation. He can select those things which are most relevant and highlight them on the screen, minimizing that which is less pertinent.

Kinescope facilities make possible the use of films involving personnel not otherwise available for repeat performances. Such films allow for effective contributions to various aspects of the professional education program with a minimal expenditure of time. A group of supervisors can discuss problems student teachers may face in the classroom; the film may be used in beginning professional courses, at the commencement of student teaching, or in courses for administrators and supervisors.

A particular advantage of CCTV is the possibility of recording televised demonstrations in 16 millimeter film for future showing as motion pictures. Such kinescope recordings can be edited to improve upon the original product or to combine several short demonstrations. In this way the progress of a single class over a period of time can be telescoped into a single film which can be used to illustrate some particular aspect of teaching or learning.



Use of closed circuit television and kinescopes:

* improves the quality of demonstrations by focusing student attention on the important aspects in the particular classroom situation

* provides uniform experiences for all students in education classes

* encourages and stimulates small group discussion of the principles of education

* permits a close-up view of specific factors in the classroom situation provides a learning situation comparable to conventional instruction

* permits recording and preservation of excellent demonstrations of recent methods and procedures for possible use in:

  professional meetings and conferences

  similar situations in other institutions

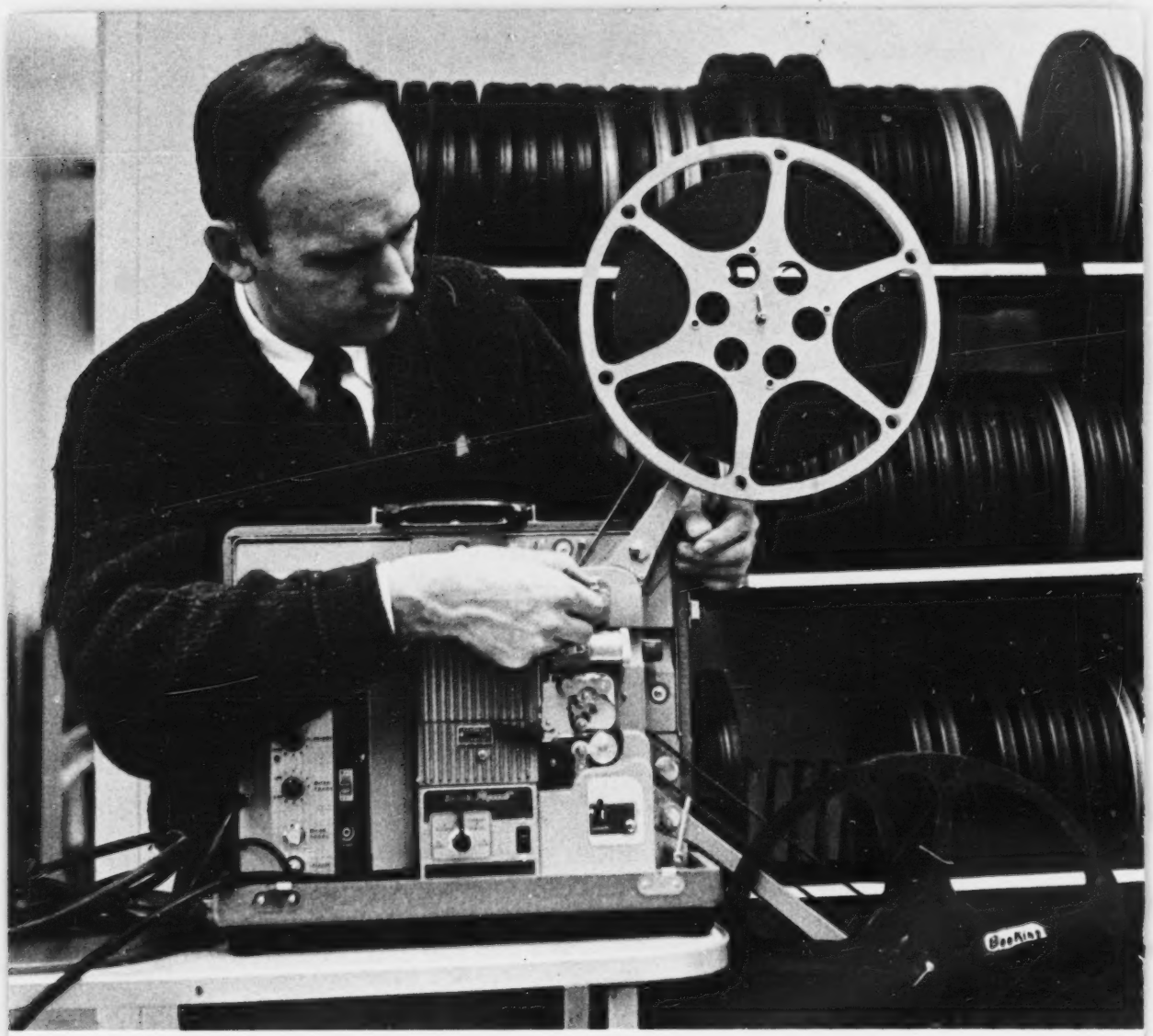
  orientation of lay groups such as PTA

  development of film tests of understandings, attitudes, and observational skills

* aids in developing sound concepts of the tasks of teaching

* facilitates a variety of presentation methods

* effects economies in staff and student time; allows for flexible use of physical facilities



KINESCOPES PRODUCED TO DATE

Subject Field	*Number of Kinescopes*
Film Test of Teacher Perception (Forms A and B)	2
Language Arts	16
Mathematics, Secondary	34
Elementary	12
Modern Languages (French, German, Russian and Spanish)	23
Professional Education (Specifically related to Undergraduate Sequence Courses, Education 55 A-B)	13
Science	20
Miscellaneous (Art, General Arts, Music, Physical Education, Social Studies, other Professional Education)	10
TOTAL	130

OTHER APPLICATIONS

Televised classroom demonstrations enable students to observe:

* special laboratory techniques in science; for example, the use of complex equipment can be illustrated for teachers in training or for teachers already in service. The ability of the TV camera to get close-up views makes such demonstrations particularly effective.

* language laboratory operations; materials used in a language laboratory can be demonstrated by experts in the field with full support of the audio and visual aspects.

* new materials and methods in mathematics instruction; a variety of new topics in the mathematics curriculum can be demonstrated for special methods classes or institutes. Examples of models used in teaching or of individual student projects can be effectively displayed.

* applications of audio-visual materials to all areas of instruction

* applications of newer concepts to classroom situations in several instructional areas.

* effective patterns of teacher behavior associated with instruction

* effectiveness of specific teaching techniques as they relate to the development of attitudes, skills and understandings

* characteristics of the students at different stages of development

* applications of learning theory to practice

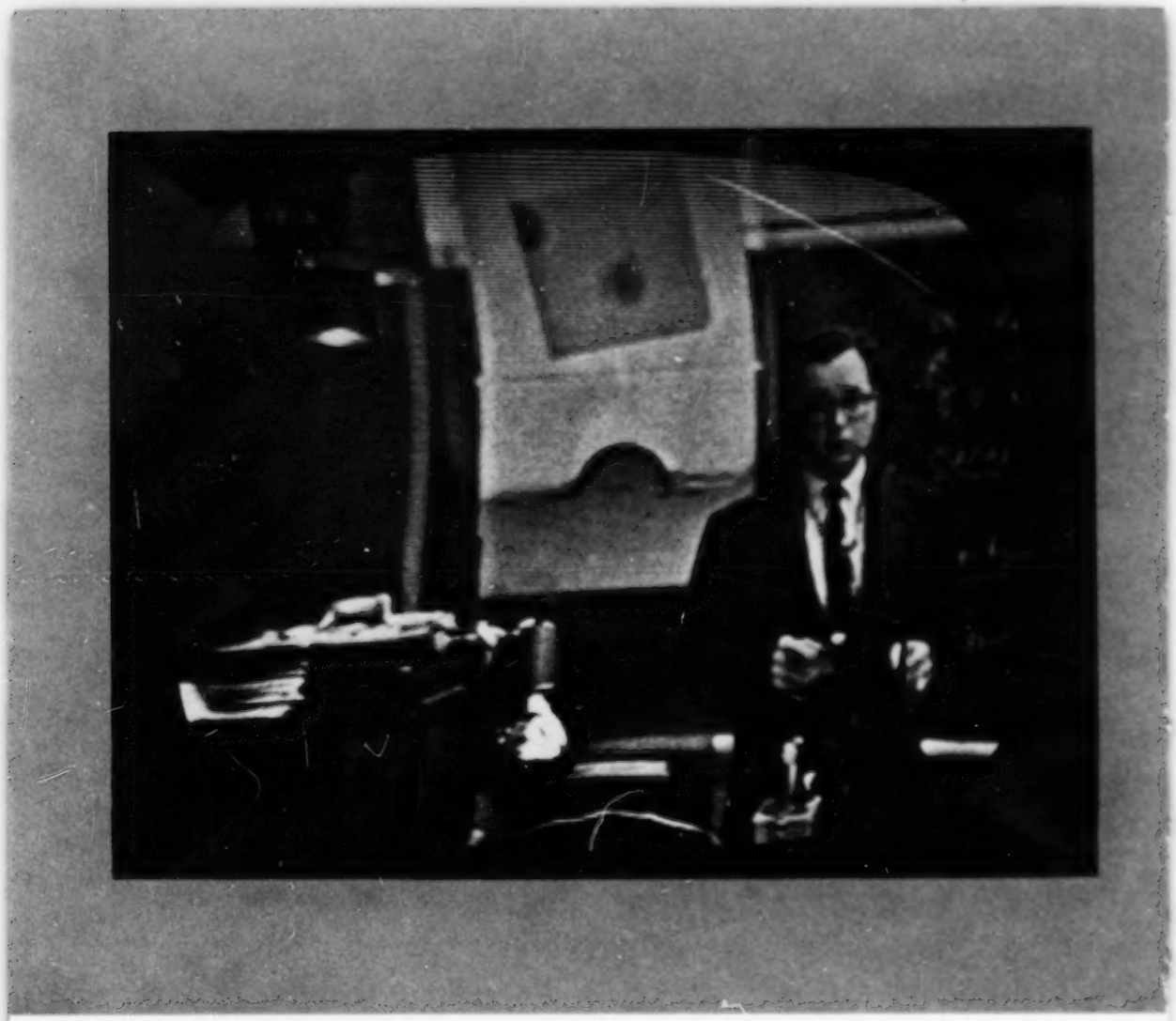
* suggested models of effective classroom teaching

* relationships among students and between students and teachers

GROSSER PREIS
DER SOLITUDE
23. Juli 1961

A series of kinescopes were produced during the 1961 University of Minnesota Summer Modern Language Institute in cooperation with the University High School Modern Languages Department.

The University High School language laboratories illustrate different types of mechanical installations. Kinescopes of the laboratory work with the students illustrate various techniques and exercises to be used when the laboratory becomes part of the classroom teaching experience and when it serves as a library-type facility. Kinescopes of classes in action in the language laboratory illustrate the learning principles involved in the audio-lingual approach and programmed learning in the language field.



Research in the area of science education has been used as a means of evaluating teaching techniques in:

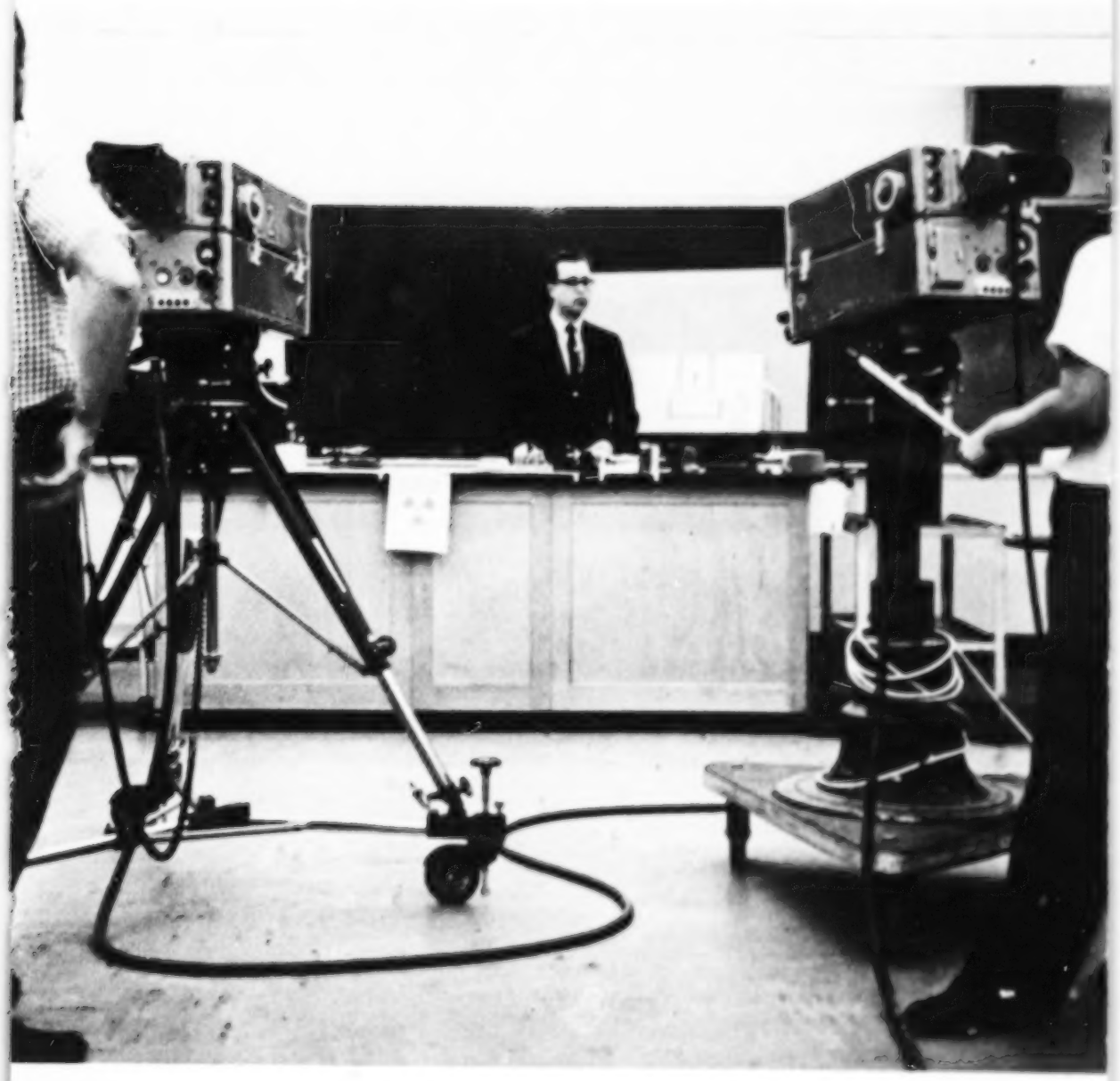
* circulation biology
* radioactive materials
* classroom applications of the oscilloscope
* analytical balance procedures

A study is currently being carried on in relation to pre-service courses in science teaching at the secondary school level.

Materials are also being developed for use in direct teaching situations to:

* facilitate the development of laboratory skills and techniques

* provide curriculum enrichment



SHOOTING
A
TITLE

MONITORING
THE
CAMERA
CONTROL
UNITS

MORE TECHNICAL ASPECTS

RESEARCH FINDINGS

Many of the statements made in this brochure have been based upon research studies comparing the effectiveness of classroom observations by visitation, CCTV, and kinescopes. Those statements which follow have been confirmed as research findings in one or more studies at the University of Minnesota.

- Comparisons between experimental groups using classroom visitation, closed circuit television, kinescopes of CCTV demonstrations, and educational films for observational purposes are more marked by "no significant differences" than by advantage of one medium over another.
- A combination of observational media tends to be more effective than a single medium.
- Direct classroom visitation is preferred by students who have had experience with a variety of observational media.
- Student preferences for observational media are conditioned by their previous educational experience.
- Observational media tend to serve somewhat different functions.
- No major differences attributable to media have been noted in assessing typical instructional outcomes.
- Observational media have little relationship to student attitudes toward children or teaching.
- Observation method is not a significant factor in differentiating student perceptions of classroom behavior.
- The Film Test of Teacher Perception developed for this project provides a suitable means of discriminating between experienced and inexperienced observers. It provides a measure of the ability to perceive and interpret classroom situations.
- Conventional instruments designed to measure understandings and attitudes have not been sensitive to the presence or absence of observation experiences.

The conclusion seems warranted that television is as effective an aid to instruction for most subject matter outcomes as conventional procedures. At the same time, closed circuit television permits flexible use of both student and staff time and physical facilities. The exact contribution of observation to the teacher education program regardless of media has not been well defined in this or other known studies.

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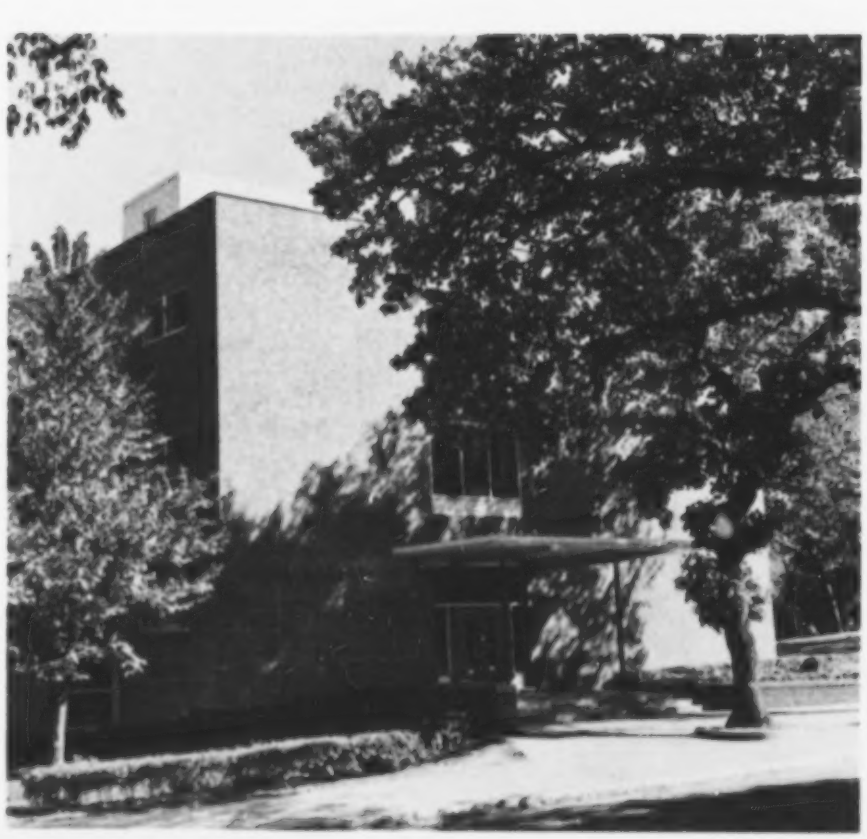

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